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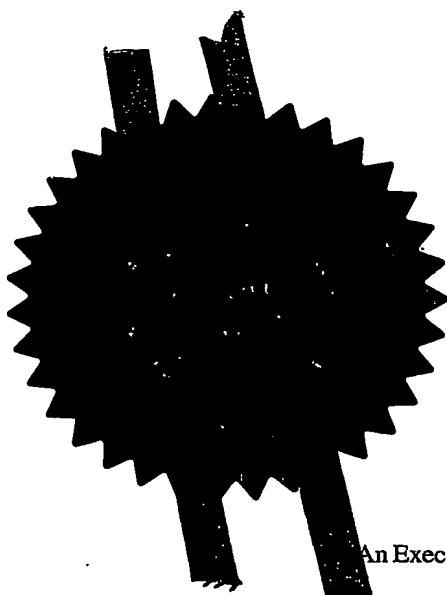
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2. Patent application number
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0201002.3

17JAN02 E688608-1 D02903
P01/7700 0.00-0201002.3

17 JAN 2002

3. Full name, address and postcode of the or of
 each applicant (underline all surnames)Reckitt Benckiser Inc
 1655 Valley Road
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Patents ADP number (if you know it) 785 224 7001

If the applicant is a corporate body, give the
 country/state of its incorporation

Delaware

4. Title of the invention

Improvements in and Relating to Cleaning Implements

5. Name of your agent (if you have one)

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Patents ADP number (if you know it) 77A9521001

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Country

Priority application number
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 (day / month / year)8. Is a statement of inventorship and of right
 to grant of a patent required in support of
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Any other documents (please specify)	FS2

1. I/We request the grant of a patent on the basis of this application.

Signature

Andrew S Brown

Date

10 January 2002

2. Name and daytime telephone number of Person to contact in the United Kingdom

John C McKnight (01482) 583719

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~~DUPLICATE~~

5

IMPROVEMENTS IN AND RELATING TO CLEANING IMPLEMENTS

The present invention relates to a substrate onto which is absorbed a cleaning agent with a scouring action for cleaning acid-resistant, hard surfaces in the household and especially for cleaning glass ceramics or vitroceramic surfaces, such as cook tops.

BACKGROUND OF THE INVENTION

15 Cleaners for hard surfaces in the household are necessary, for example, for metals, glass, ceramics, synthetic materials, glass ceramics and the like. Such cleaners can be powdery, pasty or liquid. The liquid products have the advantage that, immediately after application to the 20 surface to be cleaned, they manifest a cleaning ability, insofar as they are intended, for the removal of fat-containing and lime-containing dirt.

In all, known cleaning agents have the disadvantage that 25 they do not satisfactorily clean or they damage the surfaces of, for example, glass ceramic cooking plates or, in the case of application to hot cooking plates, attack these chemically.

30 The typical vitroceramic surface requires several steps to clean a cook top. These steps include the following: scraping the excess soil off; applying a cleaning product to the soiled surface; spreading the cleaner and mechanically cleaning the surface with a paper towel or

5 other, wiping implement. After cleaning, a new paper towel or cleaning implement is needed to remove the excess cleaner and soil. Then, a new, clean, dry towel is needed to buff the surface to a shine. This invention eliminates the need for a separate cleaning product and several new
10 towels.

The invention consist of a nonwoven wipe that is wet with a cleaning compound on one side while the other is dry, or one half of the wipe is wet with the cleaning compound
15 while the other half is dry.

SUMMARY OF THE INVENTION

Accordingly, it is an object of the present invention to
20 provide a substrate onto which a predetermined amount of a glass ceramic, or vitroceramic, cleaner is absorbed. The substrate will have an area where no cleaner is absorbed, thus providing a separate area to dry and buff the glass ceramic surface.

25

The present invention provides for an article of manufacture comprising:

- A). a non-woven substrate; and
- 30 B) a composition comprising:
 - i) a surfactant selected from the group consisting of nonionic surfactants, anionic surfactants, and mixtures thereof;

5 ii) optionally, a scouring agent selected from the group consisting of oxides, carbonates, quartzes, siliceous chalk, diatomaceous earth, colloidal silicon dioxide, alkali metasilicates, organic abrasive materials selected from polyolefins, polyethylenes,
10 polypropylenes, polyesters, polystyrenes, acetonitrile-butadiene-styrene resins, melamines, polycarbonates, phenolic resins, epoxies and polyurethanes, natural materials selected from rice hulls, corn cobs, and the like, nepheline syenite, or
15 talc and mixtures thereof;
 iii) a thickener selected from the group consisting of cellulose, cellulose derivatives, bentonite clays, natural gums, hydrous silicates, and mixtures thereof;
 iv) optionally, an organic solvent;
20 v) silicone; and
 vi) water;
 wherein the composition of B) is impregnated on a portion of substrate A) and the impregnated portion of substrate A) is separated from a non-impregnated portion of substrate A)
25 by a barrier, wherein the substrate A) or a portion thereof is optionally abrasive or contains imbedded abrasive particles.

30 Preferably, the scouring agent is a mixture of oxides and carbonates. In addition, a mixture of nonionic and anionic surfactants are preferred.

A predetermined amount of the above composition can be placed on a substrate, for example, a non-woven wipe, such

5 that a predetermined area of the substrate does not contain
the composition. This area is then available for drying
and buffing the glass ceramic surface. In one variation,
one-half of the front side of the substrate can contain the
composition and the other half of the front side would not
10 contain the composition. Another variation would have the
front side of the substrate contain the composition and the
back side would not contain the composition. In these and
other variations, there are barriers to prevent migration
of the composition to those areas of the substrate which
15 are to be free of composition.

The substrate can be smooth or abrasive or can contain
abrasive particles imbedded within. If the substrate is
abrasive or contains abrasive particles imbedded within,
20 then the composition may or may not contain a scouring
agent.

Other objects, features and advantages of the present
invention will become apparent to those skilled in the art
25 from the following detailed description. It should be
understood, however, that the detailed description and
specific examples, while indicating preferred embodiments
of the present invention, are given by way of illustration
and not limitation. Many changes and modifications within
30 the scope of the present invention may be made without
departing from the spirit thereof, and the invention
includes all such modifications.

5

BRIEF DESCRIPTION OF THE DRAWINGS

FIG 1, shows a cross-section of a substrate wherein one side of the substrate has been impregnated with an inventive composition and the other side has not.

10

FIG 2 shows a schematic wherein a portion of a substrate has been impregnated with an inventive composition and the remaining portion has not.

15

DETAILED DESCRIPTION OF THE INVENTION

The present invention provides for an article of manufacture comprising:

20

- A) a non-woven substrate; and
- B) a composition comprising:
 - i) a surfactant selected from the group consisting of nonionic surfactants, anionic surfactants, and mixtures thereof;
 - ii) optionally, a scouring agent selected from the group consisting of oxides, carbonates, quartzes, siliceous chalk, diatomaceous earth, colloidal silicon dioxide, alkali metasilicates, organic abrasive materials selected from polyolefins, polyethylenes, polypropylenes, polyesters, polystyrenes, acetonitrile-butadiene-styrene resins, melamines, polycarbonates, phenolic resins, epoxies and polyurethanes, natural materials selected from rice

25

30

5 hulls, corn cobs, and the like, nepheline syenite, or
talc and mixtures thereof;

 iii) a thickener selected from the group consisting of
cellulose, cellulose derivatives, bentonite clays,
natural gums, hydrous silicates, and mixtures thereof;

10 iv) optionally, an organic solvent;

 v) silicone; and

 vi) water;

 wherein the composition of B) is impregnated on a portion
of substrate A) and the impregnated portion of substrate A)
15 is separated from a non-impregnated portion of substrate A)
by a barrier, wherein the substrate A) or a portion thereof
is optionally abrasive or contains imbedded abrasive
particles.

20 The substrate can be smooth or abrasive or can contain
abrasive particles imbedded within. If the substrate is
abrasive or contains abrasive particles imbedded within,
then the composition may or may not contain a scouring
agent.

25 Preferably, the scouring agent is a mixture of oxides and
carbonates. In addition, a mixture of nonionic and anionic
surfactants are preferred.

30 A predetermined amount of the above composition can be
placed on a substrate, for example, a non-woven wipe, such
that a predetermined area of the substrate does not contain
the composition. This area is then available for drying
and buffing the glass ceramic surface. In one variation,

5 one-half of the front side of the substrate can contain the composition and the other half of the front side would not contain the composition. Another variation would have the front side of the substrate contain the composition and the back side would not contain the composition. In these and

10 other variations, there are barriers to prevent migration of the composition to those areas of the substrate which are to be free of composition. The barriers can include thin strips of polymer to separate the halves of the sheets, if the composition is placed on one-half of the

15 front of the substrate as well as an impermeable layer between the substrate so as to prevent the composition from passing from the front of the substrate, where absorbed, to the back, which is used to dry and buff the surface.

20 The composition according to the invention contains, as an essential ingredient, one or more surfactants selected from anionic surfactants, nonionic surfactants and mixtures thereof. Such surfactants are well known and described in the literature, for example, in "Surface-Active Agents and

25 Detergents", Volumes I and II by Schwartz, Perry and Berch as well as in McCutcheon's, Detergents and Emulsifiers, North American edition (2001), published by The Manufacturing Confectioner Publishing Co.; McCutcheon's, Functional Materials, North American Edition (2001), both of which are incorporated by reference herein.

30 Examples of suitable anionic surfactants include C₁₂ -C₁₈ primary alkyl sulfates; alkylbenzene sulfonates having an alkyl chain length of C₈ -C₁₅; olefin sulfonates; alkyl

5 xylene sulfonates; dialkyl sulfosuccinates; and fatty acid ester sulfonates. Sodium salts are generally preferred.

Examples of suitable nonionic surfactants include alkoxylated adducts of fatty alcohols containing an average 10 of from 3 to 10 alkylene oxide groups per molecule with the alkyl chain of the fatty alcohol having 6 to 14 carbon atoms. A particularly preferred aliphatic alcohol ethoxylate is a primary alcohol having an average of from 9 to 11 carbon atoms in the alkyl chain condensed with an 15 average of from five to seven ethoxy groups per mole of alcohol.

The present invention also comprises a scouring material selected from the group consisting of oxides (for example, 20 calcined aluminum oxides and the like), carbonates (for example, calcium carbonate and the like), quartzes, siliceous chalk, diatomaceous earth, colloidal silicon dioxide, alkali metasilicates (for example, sodium metasilicate and the like), organic abrasive materials 25 selected from polyolefins, polyethylenes, polypropylenes, polyesters, polystyrenes, acetonitrile-butadiene-styrene resins, melamines, polycarbonates, phenolic resins, epoxies and polyurethanes; natural materials such as, for example, rice hulls, corn cobs, and the like, or talc and mixtures 30 thereof. The particle size of the scouring agent can range from about 1 μm to about 1000 μm , preferably between about 10 μm to about 200 μm , and more preferably between about 10 μm and about 100 μm . It is preferred to us those scouring agents that will not scratch glass ceramic surfaces. Such

5 scouring agents include calcium carbonate, siliceous chalk, diatomaceous earth, colloidal silicon dioxide, sodium metasilicate, talc, and organic abrasive materials. Calcium carbonate is preferred.

10 These agents provide an abrasiveness to the composition, if needed (not generally needed if the substrate contains abrasive particles imbedded therein) so as to assist in cleaning the glass ceramic top.

15 The present invention also comprises a thickener which assists not only by helping to suspend the scouring agents, but also in allowing the composition to flow appropriately on the substrate as well as holding moisture in the intended area of the substrate. In addition, if the
20 composition is used without a substrate, then the thickener assists in suspending the scouring agent in the bottle as well as permitting appropriate flow of the composition when dispensed. Examples of thickeners include cellulose, cellulose derivatives, bentonite clays, natural gums,
25 hydrous silicates, and mixtures thereof. Mixtures of natural gums, for example, alginates, guar, xanthan, and hydrous silicates are preferred.

An organic solvent is optional for the present invention.
30 When present, it is generally a lower alkanol, for example, isopropanol and the like with alcohols having about 1 to 6 carbon atoms.

5

Silicone is also present in the present invention. Preferably, they are polydimethylsiloxanes or medium viscosity (from about 1,000 to about 100,000 centistokes with about 10,000 to 25,000 centistokes being preferred).

10

Water is added to the above components in order to provide 100% by weight of the composition. The water may be tap water, but is preferably distilled and is most preferably deionized water. If the water is tap water, it is preferably substantially free of any undesirable impurities such as organics or inorganics, especially minerals salts which are present in hard water which may thus interfere with the operation of the above components as well as any other optional components that may be present.

20

Optional components include perfume, dyes and colorants, additional surfactants, pH buffers, and the like with the appreciation that any of the optional components selected will not interfere with the operation and use of the composition of the present invention.

Another component of the present invention is a substrate onto which the composition of the present invention is absorbed. The substrate is preferably a non-woven material and can be made from any absorbable fiber, for example, rayon, polyester, cellulose, etc. Such substrates are available from several sources, for example, BBA Nonwovens and Alhstrom. In some instances, abrasive materials can be incorporated into one surface of the wipe and then the

5 inventive composition is then absorbed on that surface of the wipe. When an abrasive material is incorporated within the wipe, then no abrasive need be incorporated within the composition. Preferably, the substrate does not contain an abrasive and the composition contains an abrasive.

10 As discussed above, only a portion of the substrate, whether a portion of a first side being absorbed with the inventive composition and the remaining portion of the first side being without absorbed composition or the front 15 side of the substrate being absorbed with the inventive composition and the back side not absorbed with the composition. In the first instance, there will be a small heat sealable strip across the surface of the substrate to prevent migration from the side containing the absorbed 20 composition to the side that does not have absorbed composition. This can be accomplished by having heat sealable materials, for example, polypropylene or polyester fibers, within the substrate so that when a heat source is applied to a designated area of the substrate, an 25 impermeable barrier is formed. Another way of accomplishing this is by placing a thin layer of a resin (for example, latex, epoxy, and the like) on the substrate to form a designated area where the composition is to be placed. The resin, when cured, forms an impermeable 30 barrier. In the second instance, there is an inner layer (for example an impermeable polymer sheet and the like) within the substrate to as to prevent migration of the absorbed composition on the front side of the substrate to the back side of the substrate.

5

Examples of compositions for use with the present invention are shown in Table 1 below:

10

Table 1

Table 1 (cont'd)

Hostapur SAS 30	2	2	2	2	2	2	2	2	2
Dantogard	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Perfume	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Laponite RD	0	1	0	1	0	0	1	1	1
Rhodopol 50-MD	0.3	0.5	0.5	0.3	0.5	0.3	0.5	0.3	0.425
IPA	0	0	4	4	0	4	4	0	4
Rhodorsil 47V 12,500	1.5	0.05	1.5	0.05	0.05	0.05	1.5	1.5	1.5
Martipol PN-505 ¹⁰									7.5

5

¹ Calcium carbonate² C₉₋₁₁alcohol ethoxylate, 6 mol EO³ Sodium C14-17 sulfonate (30% active)⁴ 1,3-Bis (hydroxymethyl) -5,5-dimethylhydantoin

10 (preservative)

⁵ Perfume (proprietary)⁶ Hydrous sodium lithium magnesium silicate⁷ Xanthan gum⁸ Isopropanol15 ⁹ Dimethylpolysiloxane fluid, 12500 centostokes¹⁰ Calcined aluminum oxide

To prepare the article for use, about 3 to about 15 grams,

preferably about 5 to about 9, more preferably about 6 to

20 about 8 grams of composition are impregnated onto

approximately 120cm² of substrate and then cut to size.For an article where one side of the substrate is coated
with the composition and the other is not, in referring to

5 FIG 1, therein the article 1 comprises top layer 3, which does not have composition impregnated therein, bottom layer 2, which does have composition impregnated therein, and barrier 4, which prevents the migration of the composition from layer 2 to layer 3.

10 Where a portion of the substrate is impregnated with the composition and the remaining portion is not (for example, the depiction in FIG 2), immediately before or after impregnating section 11, a barrier 13, which can be a
15 curable resin or formed by applying a heat source to a small part of the substrate, is applied to prevent migration of the composition to section 12. As shown in FIG 2, the composition may be placed down in stripes or the entire section 11 can be impregnated with the composition.

20 In use, whether a section of the substrate is impregnated (as schematically shown in FIG 2) or one side of the substrate is impregnated (cross-sectionally shown in FIG 1), the user takes the article with the impregnated side 25 towards the glass ceramic surface to be cleaned and cleans with that portion of the article. Thereafter, in the first instance section 11 is folded onto section 12 by bending along barrier 13 and the backside of section 12 is then used to dry and buff thus cleaned glass ceramic surface.

30 In the second instance, the bottom layer 2 of article 1 is folded upon itself and the remaining layer 3 is then used to dry and buff the thus cleaned glass ceramic surface.

5 Examples of a cleaning agent according to the present invention were tested. Testing of a cleaning agent of the present invention for scratching showed no negative effects. The cleaning ability of a cleaning agent according to the present invention was comparably good.

5

We claim:

1. An article of manufacture comprising:
 - 10 A) a non-woven substrate; and
 - B) a composition comprising:
 - i) a surfactant selected from the group consisting of nonionic surfactants, anionic surfactants, and mixtures thereof;
 - 15 ii) optionally, a scouring agent selected from the group consisting of oxides, carbonates, quartzes, siliceous chalk, diatomaceous earth, colloidal silicon dioxide, alkali metasilicates, organic abrasive materials selected from polyolefins, polyethylenes, polypropylenes, polyesters, polystyrenes, acetonitrile-butadiene-styrene resins, melamines, polycarbonates, phenolic resins, epoxies and polyurethanes, natural materials selected from rice hulls, corn cobs, and the like, nepheline syenite, or talc and mixtures thereof;
 - 25 iii) a thickener selected from the group consisting of cellulose, cellulose derivatives, bentonite clays, natural gums, hydrous silicates, and mixtures thereof;
 - iv) optionally, an organic solvent;
 - 30 v) silicone; and
 - vi) water;

wherein the composition of B) is impregnated on a portion of substrate A) and the impregnated portion of substrate A) is separated from a non-impregnated portion of substrate A)

- 5 by a barrier, wherein the substrate A) or a portion thereof is optionally abrasive or contains imbedded abrasive particles.
- 10 2. The article of manufacture of claim 1 wherein surfactant B) i) is a mixture of anionic surfactants and nonionic surfactants.
- 15 3. The article of manufacture of claim 2 wherein anionic surfactant is a sulfonate.
4. The article of manufacture of claim 3 wherein nonionic surfactant is an alcohol ethoxylate.
- 20 5. The article of manufacture of claim 1 wherein thickener B) iii) is a mixture of natural gums and silicates.
6. The article of manufacture of claim 5 wherein natural gum is xanthan gum.
- 25 7. The article of manufacture of claim 1 wherein scouring agent B) ii) is present.
8. The article of manufacture of claim 7, wherein scouring agent is selected from calcium carbonate, siliceous chalk, diatomaceous earth, colloidal silicon dioxide, sodium metasilicate, and organic abrasive materials selected from polyolefins, polyethylenes, polypropylenes, polyesters, polystyrenes, acetonitrile-

5 butadiene-styrene resins, melamines, polycarbonates,
phenolic resins, epoxies and polyurethanes, or talc and
mixtures thereof.

9. The article of manufacture of claim 1, wherein organic
10 solvent B) iv) is present

10. The article of manufacture of claim 1 wherein
substrate A) comprises at least three layers wherein one
layer acts as the barrier between the impregnated portion
15 and the non-impregnated portion.

ABSTRACT

IMPROVEMENTS IN AND RELATING TO CLEANING IMPLEMENTS

10 Disclosed herein is an article of manufacture of a substrate onto which a cleaning composition is partially impregnated, leaving a portion of the substrate not impregnated with the composition. The impregnated side of the substrate is used to clean surfaces, for example, glass
15 ceramic stove tops, and the unimpregnated side is then used to dry and buff the thus cleaned surface.

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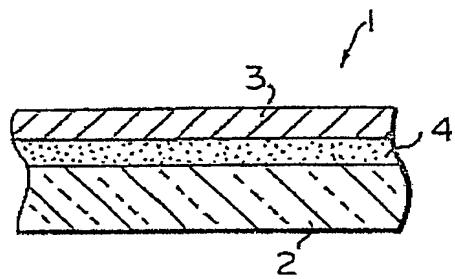


FIG 1

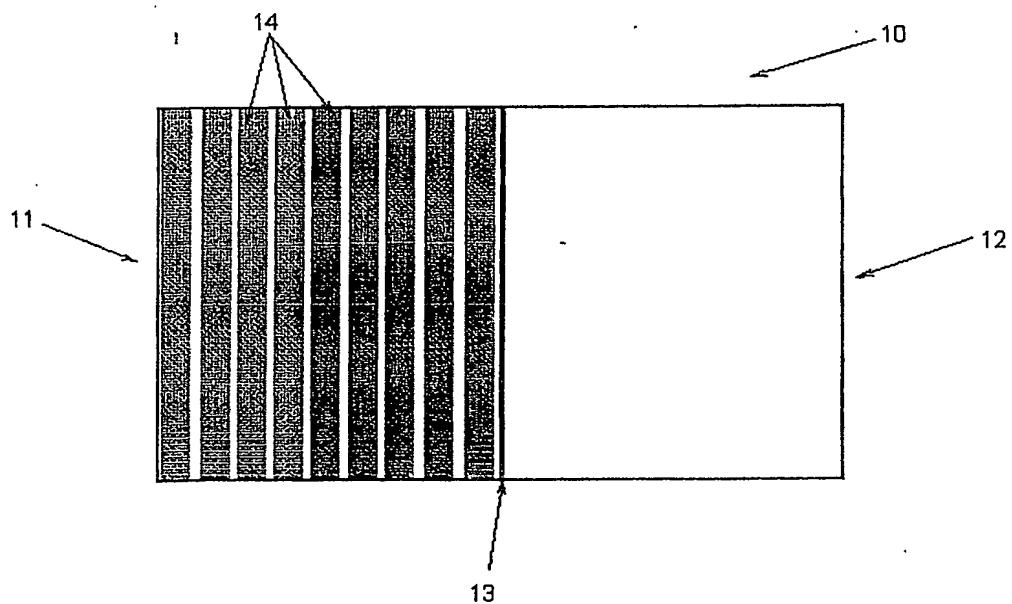


FIG 2